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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/657,743	09/05/2003	Gil Cohen	20002/0200022-US0	8922
7278	7590	01/05/2005	EXAMINER	
DARBY & DARBY P.C. P. O. BOX 5257 NEW YORK, NY 10150-5257			KANG, JULIANA K	
			ART UNIT	PAPER NUMBER
			2874	

DATE MAILED: 01/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/657,743

Applicant(s) **OK**

COHEN, GIL

Examiner

Juliana K. Kang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 October 2004.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-8,11-26,39,40 and 44-46 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1,3,4,8,11,14-18,26,39,40 and 44-46 is/are rejected.
7) ☒ Claim(s) 5-7,12,13 and 19-25 is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

1. Applicant's communication filed on October 13, 2004 has been carefully reviewed by the Examiner. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action.

Claim Objections

2. Claim 4 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Please note that claim 4 is dependent on claim 2 that is canceled.

3. Claims 3, 8, and 16 recite the limitation "said at least one phase changing element." Since the limitation "at least one phase changing element" is amended in claim 1 to "at least one pixilated phase changing element," it would be proper to amend the all the dependent claims of claim 1 to use the same claim language.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

5. Claims 1, 8, 11, 14-17 and 26 are rejected under 35 U.S.C. 102(a) as being anticipated by Wang et al (U.S. Patent 6,175,667 B1).

Regarding claims 1, 8, 11, 14, 17, Wang et al disclose a variable optical attenuator comprising: an input fiber (11) for receiving an optical signal to be attenuated; an output fiber (12) for outputting said attenuated optical signal, two pixilated phase

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changing element (Wang et al's electro-optic layer [14] comprising two regions that have different electrodes 15 and 16) disposed in an optical path such that part of said optical signal passes through at least one pixel of said at least one pixilated element; a drive source (see column 3 lines 62-65) applied to said at least one pixel, operative to change the phase of that part of said optical signal passing through said at least one pixel (see column 4 lines 7-12).

Regarding claims 15 and 16, Wang et al disclose a reflecting surface (17) formed on the rear side of the phase changing element.

Regarding claim 26, as described above Wang et al disclose the claimed device except that the device is operative as a mode-converter. However, it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 18, 39 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al (U.S. Patent 6,175,667 B1).

Regarding claim 18, as described above Wang et al disclose the claimed invention except the electrode that is located remotely from the pixel. Placement of electrodes in any location including remote location from the pixel in Wang et al would have been obvious to one having ordinary skill in the art as long as the electrodes causes the modulator to operate properly.

Regarding claim 39, as described above Wang et al disclose the claimed invention except a detector element and a drive circuitry for controlling the phase change. Wang et al teach the phase changing element is controllably changed. Thus, one with ordinary skill in the art would have recognized a detector and a drive circuitry in Wang et al to effectively and precisely tune the phase changing element.

Regarding claim 40, as described above Wang et al disclose the claimed invention except a plurality of input and output fibers. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a plurality of fibers in Wang et al, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. Using a plurality of fiber instead of a single fiber can carry more signals.

8. Claims 3, 4, and 44-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al (U.S. Patent 6,175,667 B1) and further in view of Dupont et al (U.S. Patent 5,907,645).

Wang et al disclose the claimed invention except at least one phase changing element being at least one liquid crystal element. Dupont et al teach that liquid crystal modulation (due to rotation of an optical axis) are advantageous due to the fact that

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substantial electro-optical effects are obtained under a weak electrical field, and at low cost (see column 1 lines 61-66). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use a liquid crystal element in Wang et al as taught by Dupont et al to reduce the cost.

Response to Arguments

9. Applicant's arguments with respect to claims have been considered but are moot in view of the new ground(s) of rejection.

Allowable Subject Matter

10. Claims 5-7, 12, 13 and 19-25 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

It appears that none of the prior art made of record teaches or reasonably suggests a variable optical attenuator with all the specific elements and the specific combinations including the specific structure of at least one phase changing element of liquid crystal or the specific structure of the pixel as set forth in claims 5-7, 12, 13, and 19-25.

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Juliana K. Kang whose telephone number is (571) 272-2348. The examiner can normally be reached on Mon. & Fri. 10:00-6:00 and Tue. & Thur. 10:00-3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rod Bovernick can be reached on (571) 272-2344. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



JULIANA KANG
PRIMARY EXAMINER